

Contract No.: EP-C-09-020
Work Assignment: WA 4-10

1. **Title:** **NPDES Vessel Regulatory Considerations**

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3. **Level of Effort Estimate:** The level of effort estimate for this work assignment is 7050 hours.

4. **Period of Performance:** March 1, 2013 through February 28, 2014

5. **General Work Assignment Requirements:**

- A. Confidential Business Information: The Contractor will, at all times, adhere to Confidential Business Information (CBI) procedures, including those requirements listed at 40 CFR Part 2, when handling industry information that the EPA Work Assignment Manager (WAM) identifies as CBI. When noted as necessary by the EPA WAM, the Contractor will manage specified reports, documents, and other materials, as well as specified draft documents developed under this WA in accordance with the procedures set forth in its "Security Plan for Handling Confidential Business Information Under the Clean Water Act (CWA)," dated March 5, 2004 or its successor approved plans.

- B. Identification as Contracting Staff: To avoid the perception that Contractor personnel are EPA employees, Contractor personnel shall be clearly identified as independent Contractors of EPA when participating in events with outside parties and visiting field sites. When speaking with the public the Contractor should refer all interpretations of policy to the EPA WAM.
- C. Limitation of Contractor Activities: The Contractor shall submit drafts of all deliverables to the EPA WAM and alternate EPA WAM for review. The Contractor shall incorporate all EPA WAM comments into the final deliverables, unless otherwise agreed upon by the EPA WAM. The Contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), Project Officer (PO), and WAM.
- D. Compliance with Section 508 Requirements: Section 508 of the Rehabilitation Act mandates that all Federal departments and agencies make electronic and information technology accessible to individuals with disabilities. This includes all individuals with disabilities wishing to access Federal information. EPA is committed to making every possible effort to ensure that all electronic and information technology developed, procured, maintained, or used by EPA is accessible to all persons with disabilities. Consequently, according to the contract clause “EPAAR 1552.2119-79: Compliance with EPA Policies for Information Resources Management,” all deliverables submitted by the Contractor shall be compliant with the Section 508 requirements.
- E. Travel: If non-local travel becomes necessary in support of this WA, a formal amendment will be issued by the Contracting Officer to add travel requirements.
- F. Draft and Deliverable format: All memos, draft comments, summaries and responses are to be provided electronically in Microsoft Word and/or Excel. The Contractor shall clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support their conclusions. EPA will review all outputs in draft form, and the Contractor shall incorporate the changes specified by EPA prior to providing a final version. All final materials, e.g., memos, tables, spreadsheets, etc. are to be prepared only after incorporating comments on draft documents provided by the EPA WAM.

Task 1: Project Management

The Contractor shall prepare a work plan within 21 calendar days of receipt of WA. The work plan shall present the technical approach by task; the project schedule and deliverables; staffing details; level of effort by task, staff member, and professional labor mix; and the estimated budget.

The Contractor shall provide electronic copies of the monthly progress reports to the EPA Project Officer (PO) and WAM. Each progress report shall describe the technical work and expenditures for the same time period as the corresponding invoice. The reports shall list by task the amount of work completed and include a table of hours by personnel for each task. The reports also shall identify any problems or difficulties. Quarterly, the reports shall include a QA section that summarizes QA steps taken in the performance of work during the reporting period.

The Contractor shall submit an email that proposes a standardized naming convention and version control for all deliverables associated with the WA. This system will ensure that deliverables are clearly named and dated and that the sequence of versions of a document is clear. The EPA WAM will review the email and then provide the contractor with written notification of approval or edits that need to be made. After receiving notification of approval the contractor shall use this standardized convention for all deliverables associated with the work assignment(s).

The Contractor shall immediately notify the EPA WAM by telephone of any problems that may impede performance, along with any corrective actions needed to solve the problems.

Task 1 - Deliverables:

1 – 1.0 - Work plan and budget: Within 21 days of receipt of work assignment

1 – 2.0 – Progress/budget reports: Included in the Monthly Technical and Cost Progress Report

1 – 3.0 - Problem report: Contractor shall notify the EPA WAM immediately upon discovery of a problem.

Task 2: Provide Technical Support to development of EPA’s Vessel General Permitting Program

Due to a 2006 court order, EPA began permitting incidental vessel discharges from many vessels on February 6, 2009. The 2008 Vessel General Permit (VGP) regulates discharges incidental to the normal operation of vessels operating in a capacity as a means of transportation. The VGP includes general effluent limits applicable to all discharges; general effluent limits applicable to 26 specific discharge streams; narrative water-quality based effluent limits; inspection, monitoring, recordkeeping, and reporting requirements; and additional requirements applicable to certain vessel types. In November 2011, EPA proposed the 2013 draft VGP. EPA plans to finalize the 2013 VGP in March 2013. As EPA finalizes the next iteration of the permit, the Agency will need support finalizing appropriate permit terms and conditions.

The Contractor shall support EPA's development of technical and factual materials for EPA use in implementing its Vessel General Permitting Program. This support will primarily be focused around developing background information and effluent limits for the Vessel general permit, but may also include conducting research for other vessel related discharge issues.

Subtask 2A: The Contractor shall support the finalization of potential permit limits for the 27 or more different categories of vessel discharges (e.g. oily water separators, graywater systems, ballast water systems, fish hold effluent discharges). The contractor shall refine as needed literature reviews, develop background materials, research technologies, and work with industry experts and government officials to develop a solid foundation for instituting national permit limits. The contractor may be asked to update technical development documents (TDDs) produced in Option Years 2 and 3. Additionally, the contractor may be asked to produce 0-3 additional TDDs. After reviewing these sources of information, the contractor shall prepare 10 – 50 page technical memoranda (plus appendices with relevant data) describing the sources of information, key findings from those sources, technological capabilities and efficacy, cost information where relevant, and what conclusions, if any, can be drawn from this information. Once final, these TDDs shall be of sufficient quality to place in the docket and serve as part of the administrative record for decision making. Subject areas which may be researched include, but will not be limited to:

1. Exchange plus treatment for ballast water discharges
2. Ballast Water Treatment Options for Lakers
3. Ballast Water Treatment Options for Small Vessels
4. Other discharge types and treatment options as necessary

Within 14 days of receiving written technical direction from the EPA WAM to proceed, the contractor shall submit an annotated outline of the TDD and appendices identifying the information, conceptual approaches, and analyses, and scope of issues to be addressed in the technical memorandum. After approval by the EPA WAM, the Contractor shall prepare and submit a draft version of the TDD within 28 days. The Contractor shall submit the final TDD within 14 days of receiving technical comments from the EPA WAM.

EPA must turn on this task before work can begin.

Subtask 2A - Deliverables:

2A - 1.0 - Draft discharge types and systems TDDs: The Contractor shall provide draft TDDs describing different discharge types and systems. The number of TDDs will be between 0 to 6 documents. The kinds of information and format of the draft TDDs and the number of draft TDDs will be determined by the WAM after discussion between the WAM and contractor.

2A - 2.0 - Final discharge types and systems TDDs: The Contractor shall provide final TDDs describing different discharge types and systems. The number of technical memoranda will be between 0 to 6 documents. The number of final TDDs will be determined by the EPA WAM after discussion between the EPA WAM and contractor.

Subtask 2B: Permit and Factsheet Language Development and Implementation Support

The Contractor shall support EPA in finalizing permit and factsheet language by preparing TDDs on specified topic areas for which EPA needs a better understanding of the regulated universe or other domestic and/or international regulation. For instance, the contractor may be asked to prepare a TDD on certain vessel types or classes and how they may be similar or differ to other classes.

Within 14 days of receiving technical direction from the EPA WAM to proceed in a specific area, the contractor shall submit a draft version of the TDD. The contractor shall submit the final TDD within 14 days of receiving technical comments from the EPA WAM.

Subtask 2B - Deliverables:

2B - 2.0 - Final VGP development TDD: The Contractor shall provide final TDDs describing VGP development. The number of TDDs will be between 0 to 6 documents. The number of final TDDs will be determined by the EPA WAM after discussion between the EPA WAM and contractor.

Subtask 2C: Provide Technical Support in Compiling, Analyzing and Maintaining the Response to Comment Document

The contractor shall maintain the Response to Comments database (developed in option period 3) that supports EPA in organizing comments and responses. The Contractor shall coordinate drafting of responses in accordance with the existing EPA VGP and based upon technical direction from EPA. These comments will be used to justify appropriate logical outgrowth in finalization of the VGP.

Subtask 2C - Deliverables:

2C – 1.0 - Comment Response document: Within 10 days of being assigned specific comments, the Contractor shall draft responses to those comments. If the draft responses should exceed 50 pages in length, the responses will be due within 21 days of being assigned. If they should exceed 100 pages, the responses shall be due within 28 days of being assigned.

2C – 2.0 - Final Response document: Within 5 days of receiving comments from the EPA WAM, the Contractor shall provide the final response document.

Subtask 2D: Provide Logistical Support for Developing a National Research Strategy to Respond to the 2011 National Academy of Science (NAS) Ballast Water Report

Based on recommendations in Chapter 6 of the NAS report titled “Assessing the Relationship Between Propagule Pressure and Invasion Risk in Ballast Water,” the Contractor shall provide support to EPA in assembling a study strategy discussing ongoing research, research gaps, and proposed approaches (using the NAS report as a basis) to determine a numeric environmentally protective ballast water discharge effluent limitation under the Clean Water Act. EPA is leading a multi-agency subcommittee of the aquatic invasive species task force to develop this strategy; the contractor shall support EPA in assembling, organizing and writing this plan. As needed, the contractor shall refine literature reviews, develop additional background materials, and work with industry experts, academic experts, and government officials to develop a solid foundation for developing a strong study strategy. Within 14 days of receiving technical direction from the WAM to proceed, the contractor shall submit an annotated outline of the strategy identifying the information and scope of issues to be addressed in the strategy. After approval by the EPA WAM, the Contractor shall prepare and submit a draft version of the strategy within 28 days. The Contractor shall submit the final strategy within 14 days of receiving technical comments from the EPA WAM.

The contractor must receive technical direction from the WAM before the work on this subtask can begin.

Subtask 2D Deliverables:

2D – 1.0 - Literature reviews: As directed by the WAM, the contractor shall conduct targeted literature reviews for improving our understanding of the Aquatic Nuisance Species Risk/Release relationship

2D – 2.0 - Draft Strategy: A draft strategy shall be submitted within 28 days of request by the WAM.

2D – 3.0 - Final Strategy: A final strategy is due within 14 days from receipt of EPA WAM’s comments.

Task 3: Provide technical support to EPA in finalization of the 2013 Small Boat Vessel General Permit (sVGP)

On July 31, 2008, Senate bill S. 3298 (PDF) (3 pp, 63K) was signed into law (P.L. No. 110-299). This law generally imposes a two-year moratorium during which time neither EPA nor states can require NPDES permits for discharges incidental to the normal operation of commercial fishing vessels and other non-recreational vessels less than 79 feet. Among other things, the moratorium does not apply to ballast water. P.L. 110-299 also directed EPA to conduct a study of vessel discharges and issue a report to Congress. This report was finalized in August 2010. The moratorium for these vessels was extended until December 2014. In November 2011, EPA proposed the draft 2013 sVGP to cover those vessels in the event that the moratorium is not extended.

The CWA authorizes civil and criminal penalties for violations of the prohibition against the discharge of a pollutant without a permit, and also allows for citizen suits against violators. These types of discharges pose unique challenges, because vessels are highly mobile and the vessel universe is extremely diverse. In order to address the ramifications of the Court's ruling, EPA is exploring the available options, including finalizing the sVGP, which will likely occur in the spring or summer of 2013.

Any elements of this task and subtask may be turned on only by written technical direction of the EPA WAM.

Subtask 3A: The Contractor shall support the finalization of sVGP effluent limits. The contractor shall refine as needed literature reviews, develop background materials, research technologies, and work with industry experts and government officials to develop a solid foundation for instituting national permit limits. The Contractor shall support EPA in finalizing permit and factsheet language by preparing TDDs on specified topic areas for which EPA needs a better understanding of the regulated universe or other domestic and/or international regulation. For instance, the contractor may be asked to prepare a TDD on certain vessel types or classes and how they may be similar or differ to other classes.

Within 14 days of receiving technical direction from the EPA WAM to proceed in a specific area, the contractor shall submit a draft version of the TDD. The contractor shall submit the final TDD within 14 days of receiving technical comments from the EPA WAM.

Subtask 3A - Deliverables:

3A - 1.0 - Final sVGP development TDD: The Contractor shall provide final TDDs describing sVGP development. The number of TDDs will be between 0 to 4 documents. The number of final TDDs will be determined by the EPA WAM after discussion between the EPA WAM and contractor.

Subtask 3B: Provide Technical Support in Compiling, Analyzing and Maintaining the Response to Comment Document

The contractor shall maintain the Response to Comments database (developed in option period 3) that supports EPA in organizing comments and responses. The contractor shall coordinate drafting of responses based upon technical direction from EPA. These comments will be used to justify appropriate logical outgrowth in finalization of the sVGP.

Subtask 3B - Deliverables:

3B – 1.0 - Comment Response document: Within 14 days of being assigned specific comments, the Contractor shall draft responses to those comments. If the draft responses should exceed 50 pages in length, the responses will be due within 21 days of being assigned. If they should exceed 100 pages, the responses shall be due within 28 days of being assigned.

3B – 2.0 - Final Response document: Within 7 days of receiving comments from the EPA WAM, the Contractor shall provide the final response document.

Task 4: Provide Technical Support in the Implementing EPA's Obligations as a Result of the Successful ESA Endangered Species Act (ESA) Consultation for the sVGP and the VGP

On November 28 and 29, 2012, EPA successfully concluded formal consultation with both Service Agencies. In consultation with the Services (NOAA and Fish and Wildlife Service (FWS)), EPA agreed to do some follow up implementation activities. These activities include periodically analyzing data received by the Agency and preparing short reports of those data. They also include periodically reviewing whether there have been new aquatic nuisance species introductions into U.S. waters.

Subtask 4A: Support the Implementation of the Services Biological Opinion Recommendations

At the direction of the WAM, the contractor shall support analyzing NOI data, reported analytical data, specified invasive species databases, and other data sources as applicable to prepare short reports to be provided to NOAA and Fish and Wildlife. Additionally, EPA, in consultation with the Services, will develop a plan for how to approach the analyses of these data sources. These products will serve to document to the Services that EPA continues to engage with the regulated Universe, and that the permit issuance remains unlikely to jeopardize listed or threatened species.

Subtask 4A - Deliverables:

4A – 1.0 Draft Outline on how EPA will meet implementation obligations: The Contractor shall provide outline for the plan of how EPA will meet its obligations within 21 days of receiving technical direction from the WAM.

4A – 2.0 Draft Plan: The contractor shall provide EPA with a draft plan within 30 days of receiving comments on the outline and technical direction from the WAM.

4A – 3.0 Final Plan: The contractor shall provide EPA with a final plan within 21 days of receiving comments on the draft plan and technical direction from the WAM.

4A – 4.0 Analysis of NOI and other data submitted: Within 30 days of receiving technical direction from the WAM, the contractor shall prepare a short summary report of NOI data submitted that characterizes elements of the regulated Universe.

Task 5: Provide Technical Support in the “Completion of a Regulatory Flexibility Act Analysis” like-analysis for the VGP and sVGP.

The purpose of this task is to finalize the analysis conducted in option periods 2 and 3 regarding the market and non-market impacts to society from the options under the sVGP and/or VGP. In November 2011, EPA proposed the draft economic analyses for the 2013 VGP and sVGP. EPA plans to finalize the economic analyses by March 2013 for the VGP and May 2013 for the sVGP. The draft economic analyses included quantification of the total additional market impacts incurred by those entities which must comply with any standards considered as part of these General Permit requirements, notes impacts that are additional costs above the baseline, and examines both the market impacts to permittees and to those sectors that supply controls. In other words, the draft analysis included information on multiple sectors affected, where possible, since some sectors will incur negative costs and some will incur positive costs. The Agency will need support in finalizing these economic analyses.

This work will finalize the examination of the potential distributional (economic) impacts on those complying with the requirements of this General Permit options under consideration considering the financial conditions of the particular sectors incurring those costs. Options for a non-quantitative characterization of the potential non-market impacts from compliance with the General Permit requirements under consideration may also be reexamined. This non-quantitative analysis should not be extensive, but rather an overview of the major potential non-market impacts.

The Contractor shall revise the quantification of the incremental market impacts associated with the General Permit options under consideration according to the methodology laid out in the deliverables as needed and as directed by the WAM. The

incremental market impacts shall be considered as those impacts that differ from the baseline. The baseline will be defined as what controls vessels must implement by all anticipated regulations as of the issuance date of the permit and those controls that vessels are currently implementing voluntarily. The incremental market impacts for each option under consideration shall be presented both as total annual impacts, as well as broken down by relevant category (e.g., vessel type, discharge type, etc.). The analysis will attempt to use a performance unit to define the level of pollutant reduction per unit cost: for instance kilograms of pollutant X reduced or percent likelihood that there will be a reduction in invasive species introduction.

The EPA WAM may anticipate the need for the contractor to produce two to three memoranda each approximately three pages in length. These memoranda would address specific issues that may arise during the development of the market impacts analysis. The specific content and deliverable dates will be provided to the contractor by the EPA WAM through written technical direction, when the need for a memorandum arises.

The Contractor shall revise the analysis of the distributional (economic) impacts associated with the General Permit as needed and as directed by the WAM. As this General Permit is not a Federal regulation, a Regulatory Flexibility Analysis and a Small Business Regulatory Enforcement Fairness Act analysis are not required. However, the analysis should be presented in a format that can easily be converted to a regulatory flexibility screening analysis if such an analysis should be required in the future. This will include examining the nature and significance of the impacts of the General Permit options on those entities incurring costs.

The Contractor shall revise a brief non-quantified characterization of the incremental non-market impacts associated with the General Permit options under consideration according to the methodology laid out in the deliverable from Task 2A that was completed in Option Year 2. This characterization shall provide an overview of the nature and significance of potential impacts associated with the requirements under consideration for the General Permit. Revision of this characterization shall require no more than 40 hours level of effort in the work plan. The final product should be no more than 10 pages in length, unless specific technical direction is given by the EPA WAM to the contrary.

Task 5 - Deliverables:

5 - 1.0- Technical memorandum: Additional deliverables (0-3 memoranda) as needed at technical direction of the EPA WAM.

5 - 2.0- Revised Final Market Analysis: Modified final draft of the analysis based on final permit options as needed delivered within 21 days of written technical direction of the EPA WAM.

Task 6: Supporting Implementation of the VGP and sVGP and other Vessel Program Outreach

The Contractor shall support EPA with the development of materials for implementation and outreach of the VGP and sVGP. Additionally, the Contractor shall support EPA's development of outreach materials and efforts in support of its vessel program.

Subtask 6A: Contractor shall prepare technical materials such as 1-2 page factsheets and power point presentations on permit conditions internal as well as external stakeholder meetings or briefings for senior management. Contractor shall assume 3 internal/external stakeholder meetings within the Washington D.C. area will be required during the period of performance, and the development of up to 10 short implementation fact sheets and implementation check lists. Some of those fact sheets may need to be translated into languages of the IMO (French, Spanish, Chinese, Russian, and/or Arabic).

Subtask 6A - Deliverables:

6A - 1.0 - Briefing Materials: Briefing materials due 5 days prior to the stakeholder meeting.

6A - 2.0 – Online Meeting Support: Meeting registration pages will be due 1 week before registration.

6A - 3.0 - Technical Memorandum and Fact Sheets: Up to 10 technical memoranda discussing common questions or other implementation issues on topics assigned by the EPA WAM via written technical direction.

6A- 4.0 - Develop Brochures: Up to 2 brochures for use on-line. Content and style will be assigned by the EPA WAM via written technical direction.

Task 7: Provide Support in Evaluating Treated Bilgewater Discharges from Vessels

EPA is conducting a study on treated bilgewater discharges from large vessels to evaluate shipboard performance of the best treatment systems. The study will characterize treated bilgewater discharges and evaluate their impacts on the environment. These vessels may include, but are not limited to container vessels, bulk carriers or other large vessels. The report would be finalized, at the latest, by August 2013. EPA would use the results of this study to inform its work at the International Maritime Organization (IMO).

The study includes

- Characterization of the effluent concentrations of treated bilgewater discharges for representative vessels
- Determination of types of separators, polishing treatments, and oil content monitors used for representative vessels
- Determinations of the volumes of those discharges, including average volumes for
 - Representative single vessels and
 - Each class vessel

- Analyses and findings as to the nature and extent of the potential effects of the discharges, including determinations of whether those discharges pose a risk to human health, welfare, or the environment and the nature of risks;
- Determination of the benefits to human health, welfare, and the environment from reducing, eliminating, controlling, or mitigating the discharges and

Subtask 7A: Based on the Study Report developed in option period 3, the contractor shall continue to

1. Evaluate information available in the docket on bilgewater
2. Review and summarize existing literature to assist in refining the study and
3. Prepare an annotated bibliography starting with EPA gathered data

Deliverable for Subtask 7A:

7A – 1.0 - The contractor shall deliver an updated draft technical memorandum that summarizes any new information on bilgewater from the docket, literature reviews, and an annotated bibliography. The document may be up to 50 pages in length. The contractor shall deliver this draft to EPA 30 days after receiving technical direction from EPA. Within 10 days of receipt of EPA's comments, the contractor shall provide the WAM with a final document.

Subtask 7B: Provide sampling and analysis assistance if EPA determines additional sampling events are necessary.

1. The contractor shall support EPA in organizing sampling events and laboratory analyses beyond what was conducted in option period 2. The contractor shall support EPA in identifying study locations, developing a list of commercial vessel operators to help identify and contact large vessels to determine if sampling can be performed on their vessels, identifying and contacting other potential volunteers, and scheduling sample analyses with laboratories.
2. The contractor shall develop a sampling and analysis plan (SAP) that will include descriptions of the study design, sampling procedures, analytical methods, and any quality control measures used to meet the project's goals. EPA will assess the plan and if needed provide comments. The contractor shall generate a final version.
3. The contractor shall support EPA in the collection of treated bilgewater discharge samples in potentially 1-2 discrete locations from numerous vessels and vessel classes.

Deliverables for Subtask 7B:

7B – 1.0 - If EPA determines that additional sampling events are necessary, the contractor shall deliver the draft SAP for this task within 30 days after receiving the technical direction from EPA. Within 10 days of receipt of EPA's comments, the contractor shall provide the WAM with a final SAP.

Subtask 7C: The contractor shall support EPA in developing a study report on the effectiveness of oily water separators in treating bilgewater discharges.

The contractor shall

1. Prepare a draft, draft final and final study report which will involve supporting EPA in the statistical analysis of the data and analyzing the impacts of the discharge of surrounding environments for the worst case scenario.
2. Revise the report as needed

Deliverables for Subtask 7C:

7C - 1.0 - The contractor shall deliver the draft Report to the WAM 30 days after the final laboratory analysis has been completed.

7C - 2.0 - Within 10 days of receipt of EPA's comments, the contractor shall provide the WAM with a final report.

Task 8: Provide Technical Support in Compiling, Analyzing and Developing a Response to Comment Document for the SS Badger Permit Decision

After review of comments submitted by the public, the Contractor shall provide support in organizing and preparing responses to these comments as clarified through technical direction by the EPA WAM. The contractor shall develop and maintain a Response to Comments database that will support EPA in organizing comments and responses. The Contractor shall coordinate drafting of responses and based upon written technical direction from the EPA WAM and copied to the EPA CO. These comments will be used to justify appropriate logical outgrowth in finalization of the SS Badger permit decision.

Any elements of this task may be turned on only by written technical direction of the EPA WAM.

Task 8 - Deliverables:

8-1.0 - Response to Comment Database: The contractor shall develop a Response to Comment database within 2 weeks of receiving technical direction from the WAM to proceed. EPA will assess the database and provide comments if needed. The contractor shall provide a final database within 7 days of receiving comments from the WAM. Target dates for final database delivery will be around March 22, 2013. The Contractor shall organize the public comments into the database within 2 weeks

of the comments having been posted into the Docket. EPA currently intends for the public comment period to close on April 12, 2013. EPA plans to use regulations.gov as the comment repository.

8-2.0 - Comment Response document: Within 7 days of being assigned specific comments, the Contractor shall draft responses to those comments. If the draft responses should exceed 50 pages in length, the responses will be due within 14 days of being assigned.

8-3.0 - Final Response document: Within 7 days of receiving comments from the EPA WAM, the Contractor shall provide the final response document.

Task 9: Evaluate options for managing ballast water for small vessels, focused on options for vessels entering and traversing the Great Lakes

Inland and Seagoing Vessels less than 1600 gross registered tons (3000 gross tons) are not required to meet the numeric treatment limits in Section 2.2.3.5 of the Final VGP. An inland vessel means a vessel that operates exclusively on inland waters. EPA encouraged vessels in this size class to use alternate measures to reduce the number of living organisms in their ballast water discharges, including use of those measures found in Part 2.2.3.5 of the VGP and use of onboard potable water generators. However, EPA did not feel comfortable mandating these requirements because the Agency did not have sufficient information about the availability and efficacy of these management approaches for these vessels. EPA concluded that, though technologies are promising for future development, they did not support the conclusion that numeric ballast water treatment limits for small inland and seagoing vessels represents BAT at this time or over the life of the permit. For example, most ballast water treatment systems have been designed for larger vessels and/or vessels which only uptake or discharge ballast water on either end of longer voyages and the record at proposal contained no evidence that any vessels smaller than 1600 GRT had successfully installed a treatment systems on their vessel. Supplemental analysis by the Agency confirmed the conclusion that the ballast water numeric limits did not reflect BAT for this class of vessels.

Some smaller vessels, because of their unique designs and operations might be able to use onboard potable water for ballasting. This is particularly true for vessels that use ballast to compensate for fuel burn off and sewage generation. This task is designed to thoroughly evaluate whether such systems can be used as an effective form of ballast water management for these vessels, and if so, whether they are environmentally effective.

EPA notes that products from subtasks A, B, and C may ultimately be combined to form one large report, or that information from these reports may be consolidated for other Agency initiatives.

Subtask 9A:

The contractor shall develop feasibility studies for placement of onboard potable water generators with actual vessel designs. The designs will be for 1-4 vessel types, and may include various small vessel types such as tug boats, small to medium cruise ships, research vessels (such as EPA's bold), etc. The designs should contemplate actual potable water generators placed onboard actual vessel designs, and should be drawn up with the intention for ultimate public release. EPA will work with vessel operators to gain ideas for ideal vessel designs.

Subtask 9A - Deliverables:

9A - 1.0 – Analysis approach: Within 15 days of receiving technical direction from the WAM, the contractor shall provide a short plan describing how the contractor intends to accomplish the goals of subtask 10a, including outlining the vessel and potable water generators to be used in the design.

9A – 2.0 – Draft report: Within 60 days of receiving technical direction from the WAM to proceed, a draft report with tentative design elements for the various vessel and potable water types

9A - 3.0 – Final Report: Within 30 days of receiving comments and technical direction from the WAM, a final report with designs outlining the feasibility of using potable water generators onboard smaller vessels.

Subtask 9B:

The contractor shall develop a short description and analysis, refining and expanding on work conducted for EPA under option year 3, looking at the range of potable water generators available, their production capacity, how they operate, and their cost.

Subtask 9B - Deliverables:

9B – 1.0 – Draft report: Within 30 days of technical direction from the WAM, a draft report discussing the range of potable water generators available, their production capacity, how they operate, and their capital and operational costs. This product should compare the estimated costs to existing ballast water treatment systems that would have undergone foreign or U.S. type approval.

9C - 2.0 – Final Report: Within 14 days of receiving comments and technical direction from the WAM, a final report discussing the characteristics of potable water generators outlined above.

Subtask 9C:

The contractor shall conduct bench or land-based testing with a potable water generator to evaluate its efficacy for preventing the discharge of living organisms from ballast water tanks. EPA will work with the contractor on developing the study design, including specifying the number of replicates and methods to be used. Any testing must be conducted by facilities with experience quantifying the number of living organisms in effluent.

Subtask 9C - Deliverables:

9C - 1.0 – Study Design: Within 30 days of receiving technical direction from the WAM, the contractor shall provide a study design describing how the goals of subtask 9C will be accomplished, including outlining the methods which will be used, facilities used to accomplish the tasks, how the research approach is generally consistent with other bench scale or lab based results. The study design shall include QA/QC elements consistent with Task 12.

9C - 2.0 – Laboratory Reports: All laboratory reports from sampling shall also be provided directly to the WAM immediately upon their completion.

9C – 3.0 – Draft report: Within 30 days of receiving the final laboratory report, a draft report discussing the environmental performance of the potable water generator in terms of reducing the number of living organisms and the discharge of any residual biocides, byproducts, or derivatives.

9C - 4.0 – Final Report: Within 14 days of receiving comments and technical direction from the WAM, a final report discussing the environmental performance of the potable water generator.

Subtask 9D: Accountability and relevance to the Great Lakes

Protecting the Great Lakes from the introduction of new invasive species is one of the priorities of EPA and the Federal Government. Task 9 has been designed to meet these goals. Subtask D is designed to produce a short accountability report for how (and whether) this research has furthered EPA's goals on this front.

Subtask 9D - Deliverables:

9D - 1.0 – Accountability Report: Within 30 days of completing the final reports, a short description of how funds were used for subtasks A, B, and C (as applicable), how much was spent on each subtask, and why the work is directly

relevant to the goal of preventing the introduction of new invasive species to the Great Lakes and slowing their dispersal pathways in those water bodies.

Task 10: Evaluate Laker Best Management Practice Efficacy

In the 2013 VGP, EPA has included several best management practices (BMPs) for Lakers to reduce the likelihood of those vessels dispersing and spreading aquatic invasive species. This task is designed to better estimate the efficacy of those mandatory management measures. EPA notes that this task is a lower priority than Task 9 and must be turned on by the WAM before any work commences.

Subtask 10A:

The contractor shall conduct a literature review of all best management practices outlined, and produce a summary of both the theoretical and experimental results examining these BMPs. This literature review might extrapolate from other fields in order to fill in significant information gaps (e.g., looking at screen design in terms of preventing colonization of mussel species in drinking water infrastructure).

Subtask 10A - Deliverables:

10A - 1.0 – Draft Literature review: Within 30 days of receiving technical direction from the WAM, the contractor shall provide EPA with a draft literature review discussing possible relevant sources of information.

10A – 2.0 – Final Literature Review: Within 30 days of receiving comments and technical direction from the WAM, a final literature review discussing any results relevant to Laker BMP efficacy.

Subtask 10B:

Based upon the results of the literature review, and contingent upon funding, the contractor shall conduct bench scale testing of specific Laker BMPs (e.g., examining how pumps induce mortality, whether maintained screens versus less maintained screens reduce living organism concentration) to evaluate their efficacy for reducing the discharge of living organisms from Laker ballast water tanks. EPA will work with the contractor on developing the study design, including specifying the number of replicates and methods to be used. Any testing must be conducted by facilities with experience quantifying the number of living organisms in effluent.

Subtask 10B - Deliverables:

10B - 1.0 – Study Design: Within 30 days of receiving technical direction from the WAM, the contractor shall provide a study design describing how the goals of subtask 11b will be accomplished, including outlining the methods which will be used, facilities used to accomplish the tasks, how the research approach is

generally consistent with other studies. The study design shall include QA/QC elements consistent with Task 12.

10B - 2.0 – Laboratory Reports: All laboratory reports from sampling shall also be provided directly to the WAM immediately upon their completion.

10B – 3.0 – Draft report: Within 30 days of receiving the final laboratory report, a draft report discussing the environmental performance of Laker BMPs in terms of reducing the number of living organisms and the discharge of.

10C - 4.0 – Final Report: Within 14 days of receiving comments and technical direction from the WAM, a final report discussing the environmental performance of Laker BMPs.

Subtask 10C: Accountability and relevance to the Great Lakes

Protecting the Great Lakes from the introduction and spread of invasive species is one of the priorities of EPA and the Federal Government. Task 10 has been designed to meet these goals. Subtask D is designed to produce a short accountability report for how (and whether) this research has furthered EPA's goals on this front.

Subtask 10C - Deliverables:

10C - 1.0 – Accountability Report: Within 30 days of completing the final report, a short description of how funds were used for subtasks A and B (as applicable), how much was spent on each subtask, and why the work is directly relevant to the goal of reducing the spread of invasive species within the Great Lakes and slowing their dispersal pathways in those water bodies.

Task 11: Develop the Quality Assurance Project Plan

During option year 1 of the contract (EP-C-09-020), the Contractor prepared a Quality Assurance Project Plan (QAPP) documenting how quality assurance and quality control will be applied to the collection and use of environmental data. As requested by EPA, the contractor shall update the QAPP if necessary during this option year.

The QAPP will be used to assure that any results obtained are of the type and quality needed and expected. The QAPP shall address the collection and use of wastewater sampling data, facility questionnaire data, any models to be used, and secondary data (including the acceptance criteria), and any new database management requirements. The QAPP must describe the controls to ensure high-quality data entry. The text of the QAPP also must explicitly reference tools that the contractor will use to document and review reproducibility and traceability, such as SOPs, check lists, and guidelines. The QAPP must include the tools as attachments for EPA's review and approval. In addition, the contractor shall document relevant QA activities in any major deliverable.

Task 11 - Deliverables:

11 - 1.0 - Draft QAPP: A revised QAPP will be submitted within 30 days of request by EPA.

11- 2.0 - Final QAPP: A final QAPP is due within 14 days from receipt of EPA WAM's comments (which shall incorporate comments from the WPD QA officer).

For Tasks 2A, 2B, 2D, 3A, 4, 5, 7, 9 and 10 a QAPP is required. The Contractor must receive technical direction from the WAM to begin development of these QAPPs. For Tasks 1, 2C, 3B, 6 and 8 a QAPP is not required because they do not involve the generation, management, distribution, or use of primary or secondary environmental data that will be used or have the potential for use in environmental decision making.